PMD121
VIRTUAL CONSULTATION SYSTEM TO ENABLE RARE DISEASES DIAGNOSIS
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OBJECTIVES: The use of medical images has become a great tool that enables a rapid diagnosis, aids in taking relevant decisions early in the process, facilitates the formulation of a second opinion in cases of doubt. Solid tumors are very rare in children and individual clinician experience is often quite limited. Yet the treatment decisions which must be made can be complex and diagnostic dilemmas are common. **METHODS:** Supported by a grant from EU-funded Project ENCCA (European Network for Cancer Research in Children and Adolescents), representatives from SIOPEL, GPOH, COG, and JPLT developed the Virtual Consultation System. VCS is a novel tool developed by Cineca Interuniversity Consortium to support clinical challenges in management of complex cases, which require the consultation among experts coming from different hospitals or countries. VCS allows to assess complex cases using relevant medical information from structured data (e-CRFs) and diagnostic DICOM images. VCS can be customized according to specific requirements in all of its components such as user roles, process flows, and the input and output information (i.e. e-CRFs, images, consensus form) linked to the different tasks in the review process. **RESULTS:** The main output is a report containing the collective findings, conclusions and recommendations for the further treatment of the patient. The use of a web-based consultation system is an essential component of excellence in diseases care because it enables patients to have access to the best available global expertise. This tool is particular important for rare tumors where clinicians need to get consultation from other colleagues in different areas of the world. **CONCLUSIONS:** This consultation service represents an opportunity to enhance the care of children with rare tumors and facilitates education of clinicians caring for such challenging patients. Such a consultation service may serve as a model for cooperative management of other rare malignancies.

PMD123
MODELING OF CLINICAL PATHWAYS IN THE IMPLANTATION OF CARDIOVERTER DEFIBRILLATORS FROM 2006 TO 2013 USING THE FRENCH HOSPITAL P.M.S.I. DATABASE
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OBJECTIVES: A clinical pathway is defined as the succession of medical events that jointly aim at improving the patients' condition. It provides efficient care by standardizing processes, reducing the variability of practices and improving the outcomes. Hospital Information Systems contain valuable data about these pathways. However, they are hardly tapped due to their volume and complexity. The objective of the study is to factually describe the clinical pathways of patients implanted with a CRT defibrillator (CRT-D) on an 8 years timeline from the French PMSI database. The PMSI annually includes the records of all hospital stays in the country. This description will bring new knowledge about the patients care to find out the correlations with their condition. **METHODS:** From the 2008 database in public hospitals, we extracted all hospital stays with an implantation of a CRT-D in France, leading to 1,602 patients. The patient's anonymous identifiers were used to find all their hospital stays during the 2 previous years (2006-2008) and the 5 following years (2008-2013), being a total of 16,931 stays. These data were analyzed using Process Mining methods to find similarities in the patient's sequences of stays. We also developed a specific visualization tool to illustrate the results. **RESULTS:** We quantified the hospitalization risks on a long-term follow-up: hospitalization for heart failure was observed 3 months prior to implantation in 51% of patients, and 8 months after implantation in 50%. 28% of patients were readmitted for the device's replacement after 2 years and 2 months, and 20% died at the hospital within 5 years. These risks were also assessed depending on the patient's comorbidities. **CONCLUSIONS:** This study shows that Process Mining methods are relevant to analyze clinical pathways at a national scale from big sized database. This descriptive approach is the prerequisite for predictive analytics.

PMD124
HOW TO CAPTURE AND REWARD THE BENEFITS ASSOCIATED WITH COMPANION DIAGNOSTICS?
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OBJECTIVES: Targeted therapies have a growing place within the therapeutic landscape and represent an innovative sector. Companion diagnostics (CD) are complementary to targeted therapies; however there is an unbalanced environment between both technologies with limited incentive measures to support the development of diagnostic tests. The aim of this analysis was to review and compare the existing processes in Europe and North America, and see how CD benefits could be rewarded. **METHODS:** An analysis was performed of the healthcare systems in France, the United Kingdom, Germany and the United-States. Advantages and disadvantages of country-specific pricing and reimbursement policies were highlighted. A literature review was then conducted to identify the benefits related to CD and potential processes to capture these benefits. Searches were run on electronic databases (i.e. MEDLINE and MEDLINE In-Process) and were supplemented by hand searches to ensure that most relevant publications were included. **RESULTS:** The analysis of healthcare systems showed a lack of incentive measures to support the development and market access of CD. Benefits associated with CD can be grouped into two categories: the health benefits (e.g. prediction of the patient's response) and the economic benefits (e.g. cost-saving due to decrease in the delay of response). To reward these benefits, several potential strategies were identified (e.g. intellectual property, reform of commissions) and the most reported one being the value-based pricing approach. **CONCLUSIONS:** Value-based pricing approaches were widely reported to reward the benefits associated with CD. Moreover, a European Directive focusing on medical devices is currently in development, with the clarification of CD's status expected. However, there is a gap between institutional and scientific timelines given that scientific research is already going a step further with the high-throughput DNA sequencing which would need to be rewarded as well.

PMD125
NEW NHI REIMBURSEMENT COVERAGE PARADIGM CALLED 'SELECTIVE REIMBURSEMENT SCHEME' ON THE FOUR MAJOR DISEASES IN KOREA
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OBJECTIVES: Introducing 'Selective reimbursement scheme' and reviewing what kinds of medical services were involved in plan to strengthen the NHI coverage for the four major diseases in 2014. **METHODS:** The MOHW has been reducing the patient's co-payment ratio to 50~ 80% from 100% for non-reimbursed medical services that have large demand for the NHI coverage but the cost-effectiveness is low since 2014. A medical service for cosmetic purposes is supposed to be non-reimbursement category. Once a service or product was assigned to selective reimbursed category, reimbursement ratios are determined in 50% or 80% based on the evaluation criteria which has 3 aspects of 'Clinical Usefulness', 'Cost Effectiveness', 'Social Demand of Reimbursement'. **RESULTS:** Based on the evaluation criteria for 'Selective reimbursement', total 12 items were assessed and enlisted in selective reimbursement category. This plan benefits 842 thousand patients and reduced non-reimbursement cost to 577 million(2014) from 1,119 million(2012) related to the four major diseases. **CONCLUSIONS:** NHI coverage is extremely focused on the four major diseases and this will cause discrimination against other diseases. In terms of patients' aspect, it may be asked whether this plan is effective to give patients an advantage enough to feel under 80% co-payment ratio. The decision making process and medical devices price appraisal remains to be considered as its transparency and rationality.

PMD126
THE IMPACT OF NEW ENDOVASCULAR THERAPIES FOR FEMOROPOPLITEAL ARTERIAL DISEASE ON THERAPY UTILIZATION AND CASE VOLUMES IN GERMANY, 2009-2013
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OBJECTIVES: Our objective was to estimate the impact of availability of new endovascular therapies on treatment volumes for femoropopliteal arterial disease in the German health care system. Germany was among the first markets to adopt and reimburse new endovascular techniques including drug-coated balloons (DCB), drug-eluting stents (DES), and latest atherectomy devices. **METHODS:** We collected therapy-specific procedure volumes for the 5-year period 2009-2013 from the German Federal Statistics Office for plain balloon angioplasty (PTA), DCB, BMS, DES, and atherectomy. In addition, surgical bypass and relevant amputation procedure volumes were collected. To assess general changes in hospitalization volumes of patients with primary diagnosis of peripheral artery disease (PAD), we also obtained ICD-10-specific discharge information. We evaluated the 5-year growth for each of the studied treatment modalities, and analyzed their relative utilization level in the latest reported year, 2013. **RESULTS:** Endovascular procedure volumes grew from 73,927 in 2009 to 98,730 in 2013 (+34%), while bypass surgery volumes decreased from 31,970 to 29,042 (-9%), for a combined growth of 21% in total procedure volumes. Hospitalizations with primary diagnosis of PAD increased by 11% in this period (168,845 to 187,563). At the same time, lower extremity amputations remained stable (+1.6%). However, a substantial shift from major to minor amputations could be observed (-14.5%; +10.5%). In 2013, PTA, DCB, BMS, DES, and atherectomy constituted 51.6%, 16.3%, 28.0%, 0.9%, and 3.2% of the total endovascular case volume. DCBs exhibited the most rapid growth, with their relative share of endovascular interventions increasing from 6.2% in 2009 to 16.3% in 2013. **CONCLUSIONS:** Five-year national data from the German healthcare system demonstrate that the availability of new endovascular therapies has led to substantial growth in femoropopliteal arterial disease procedure volumes, expanding the treated population and partially replacing surgical bypass treatment. Concurrently, our results suggest a trend towards improved limb salvage.

PMD127
MEDICAL DEVICES: INNOVATIVE MODELS TO ACCESS THE MARKET LEVERAGING ON SHARED INFRASTRUCTURE AMONG PAYERS AND PHARMACEUTICAL COMPANIES
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OBJECTIVES: To provide on-line shared infrastructures among Payers and Companies, used by health personnel, regulatory bodies and Sponsors, in order to allow the management of medical devices delivery process, from prescription until direct reimbursement from National Health System. **METHODS:** Based on a long history in collecting and analyzing real-world data, CINECA Interuniversity Consortium has developed an innovative Cloud-based IT infrastructure for the entire management of the service arrangements among Pharmaceutical Companies and Payers. The solution is designed to ensure proper data collection aimed to evaluate appropriateness, assess device performance and estimate efficacy in a real-world context, according to highest quality and security industry standards. The system may foresee the direct distribution of device and materials to the patient, in order to speed up the process and increase compliance. **RESULTS:** In innovative therapies setting, the web-based system has been used in Italy for more than 75.000 patients with type 2 diabetes treated with antidiabetic drugs. Access to therapy was allowed through 3.741 diabetes specialists belonging to 1.278 dedicated centers. The system is being extended to manage and allow market access for innovative devices. The system can manage the entire process of device management (prescription,